

CLAIMS

1. A non-aqueous electrolyte secondary battery comprising: a positive electrode sheet comprising a positive electrode mixture containing a lithium-containing transition metal oxide as an active material and a particulate binder; a negative electrode sheet comprising a negative electrode mixture containing a carbon material; a separator interposed between said positive electrode sheet and said negative electrode sheet; and a non-aqueous electrolyte containing a lithium salt,

wherein said positive electrode sheet and said negative electrode sheet are wound with said separator interposed therebetween to form an electrode assembly, and said positive electrode mixture has an active material density of 3.0 to 4.0 g/ml.

2. The non-aqueous electrolyte secondary battery in accordance with claim 1, wherein said electrode assembly has a substantially elliptic transverse-section.

3. The non-aqueous electrolyte secondary battery in accordance with claim 2, wherein a ratio of the longer axis to the shorter axis in said substantially elliptic transverse-section is 4 to 10.

4. The non-aqueous electrolyte secondary battery in accordance with claim 1, wherein said particulate binder is an elastic copolymer comprising a 2-ethylhexylacrylate unit, an acrylic acid unit, and an acrylonitrile unit.

5. The non-aqueous electrolyte secondary battery in accordance with claim 4, wherein in an absorption spectrum obtained by an FT-IR spectrometry of said elastic copolymer, an intensity of an absorption peak attributed to C=O stretching vibration in said 2-ethylhexylacrylate unit and said acrylic acid unit is 3 to 50 times an intensity of an absorption peak attributed to C≡N stretching vibration in said acrylonitrile unit.

6. The non-aqueous electrolyte secondary battery in accordance with claim 1, wherein said positive electrode mixture contains 0.4 to 2 parts by weight of said particulate binder per 100 parts by weight of said lithium-containing transition metal oxide.

7. The non-aqueous electrolyte secondary battery in accordance with claim 6, wherein said positive electrode mixture further contains not less than 2 and less than 4 parts by weight of a conductive agent comprising graphite (A) and carbon black (B) per 100 parts by weight of said lithium-containing transition metal oxide, and a weight ratio of (A)/(B) in said conductive agent is 20/80 to 80/20.

8. The non-aqueous electrolyte secondary battery in accordance with claim 1, wherein said positive electrode mixture further contains a thickening agent having a polyethylene structure.

9. A positive electrode for a non-aqueous electrolyte secondary battery comprising a positive electrode

mixture containing 100 parts by weight of a lithium-containing transition metal oxide, 0.4 to 2 parts by weight of a particulate binder, and not less than 2 and less than 4 parts by weight of a conductive agent, wherein said positive electrode mixture has an active material density of 3.0 to 4.0 g/ml, said conductive agent comprises graphite (A) and carbon black (B), and a weight ratio of (A)/(B) is 20/80 to 80/20.

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